

IN THE CLAIMS

Please amend the claims to read as follows:

Listing of Claims

1. (Currently Amended) An OFDM-CDMA-based transmission apparatus comprising:

a first spreader for carrying out spreading processing on that spreads a plurality of transmission signals using mutually different spreading codes;

a second spreader for carrying out spreading processing on that spreads at least one known signal using a spreading code different from the spreading codes used to spread the transmission signals; and

a transmitter for subjecting the signals spread by said first spreader and said second spreader to that frequency division multiplexing multiplexes the transmission signals after being spread by said first spreader and the known signal after being spread by said second spreader using a plurality of carriers and transmitting transmits the multiplexed signal.

2. (Currently Amended) The OFDM-CDMA-based transmission apparatus according to claim 1, wherein the known signal spread by said second spreader carries out spreading processing on a

~~known signal whose signal level is has a higher signal level than the levels of a the plurality of transmission signals.~~

3. (Currently Amended) An OFDM-CDMA-based reception apparatus comprising:

~~a receiver that receives a multiplexed signal for receiving the signal on which a plurality of transmission signals and at least one known signal are spreading spread, using mutually different spreading codes, and frequency-division multiplexed using a plurality of carriers;~~

~~a first demodulator that, for extracting each reception signal by carrying out despreading processing on a received signal of the plurality of transmission signals, despreads information within the multiplexed signal, using a predetermined spreading code corresponding to the respective transmission signal, to extract a received version of the transmission signal;~~

~~a second demodulator for carrying out despreading processing on the received signal that despreads information within the multiplexed signal, using a spreading code assigned to the known signal, to extract a received version of the and thereby extracting a received known signal;~~

a phase error detector for detecting that detects a residual phase error using the known signal and the received version of the known signal; and

a phase compensator for carrying out that phase compensation on the each reception compensates the received version of each transmission signal using the residual phase error.

4. (Currently Amended) A communication terminal apparatus equipped with an OFDM-CDMA-based transmission apparatus and an OFDM-CDMA-based reception apparatus, said OFDM-CDMA-based transmission apparatus comprising:

a first spreader for carrying out spreading processing on that spreads a plurality of transmission data signals using mutually different spreading codes;

a second spreader for carrying out spreading processing on that spreads at least one first known signal using a spreading code different from the spreading codes used to spread the data signals; and

a transmitter for subjecting the signals spread by said first spreader and said second spreader to that frequency division multiplexing multiplexes the data signals after being spread by said first spreader and the first known signal after being spread by said second spreader using a plurality of

carriers and transmitting transmits the multiplexed signal as a first multiplexed signal,

said OFDM-CDMA-based reception apparatus comprising:

a receiver that receives a second multiplexed signal for receiving the signal on which a plurality of transmission signals and at least one second known signal are spreading spread, using mutually different spreading codes, and frequency-division multiplexed using a plurality of carriers;

a first demodulator that, for extracting each reception signal by carrying out despreading processing on a received signal of the plurality of transmission signals, despreads information within the second multiplexed signal, using a predetermined spreading code corresponding to the respective transmission signal, to extract a received version of the transmission signal;

a second demodulator for carrying out despreading processing on the received signal that despreads information within the second multiplexed signal, using a spreading code assigned to the second known signal, to extract a received version of the and thereby extracting a received second known signal;

a phase error detector for detecting that detects a residual phase error using the second known signal and the received version of the second known signal; and

a phase compensator for carrying out that phase compensation on the each reception compensates the received version of each transmission signal using the residual phase error.

5. (Currently Amended) A base station apparatus that carries out a radio communication with a communication terminal apparatus equipped with an OFDM-CDMA-based transmission apparatus and an OFDM-CDMA-based reception apparatus, said OFDM-CDMA-based transmission apparatus comprising:

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a first spreader for carrying out spreading processing on that spreads a plurality of transmission data signals using mutually different spreading codes;

a second spreader for carrying out spreading processing on that spreads at least one first known signal using a spreading code different from the spreading codes used to spread the data signals; and

a transmitter for subjecting the signals spread by said first spreader and said second spreader to that frequency division multiplexing multiplexes the data signals after being spread by said first spreader and the first known signal after being spread by said second spreader using a plurality of carriers and transmitting transmits the multiplexed signal as a first multiplexed signal,

said OFDM-CDMA-based reception apparatus comprising:

a receiver that receives a second multiplexed signal for receiving the signal on which a plurality of transmission signals and at least one second known signal are spreading spread, using mutually different spreading codes, and frequency-division multiplexed using a plurality of carriers;

a first demodulator that, for extracting each reception signal by carrying out despreading processing on a received signal of the plurality of transmission signals, despreads information within the second multiplexed signal, using a predetermined spreading code corresponding to the respective transmission signal, to extract a received version of the transmission signal;

a second demodulator for carrying out despreading processing on the received signal that despreads information within the second multiplexed signal, using a spreading code assigned to the second known signal, to extract a received version of the and thereby extracting a received second known signal;

a phase error detector for detecting that detects a residual phase error using the second known signal and the received version of the second known signal; and

~~a phase compensator for carrying out that phase compensation on the each reception compensates the received version of each transmission signal using the residual phase error.~~

6. (Currently Amended) A transmission method comprising:
~~first spreading step of carrying out spreading processing on a plurality of transmission signals using mutually different spreading codes;~~

~~second spreading step of carrying out spreading processing on at least one known signal using a spreading code different from the spreading codes used to spread the plurality of transmission signals; and~~

~~transmitting step of subjecting the signals spread by said first spreading step and said second spreading step to frequency division multiplexing, using a plurality of carriers, the plurality of spread transmission signals and the spread known signal and transmitting the multiplexed signal.~~

7. (Currently Amended) A reception method comprising:
~~receiving step of receiving the a multiplexed signal on which a plurality of transmission signals and at least one known signal are spreading spread, using mutually different spreading~~

codes, and frequency-division multiplexed using a plurality of carriers;

~~first demodulating step of extracting each reception signal by carrying out despreading, for each of the plurality of transmission signals, information within the multiplexed signal, using a spreading code corresponding to the respective transmission signal, to extract a received version of the transmission signal processing on a received signal using a predetermined spreading code;~~

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~~second demodulating step of carrying out despreading information within the multiplexed signal, using a spreading code assigned to the known signal, to extract a received version of the known signal processing on the received signal using a spreading code assigned to the known signal and thereby extracting a received known signal;~~

~~phase error detecting step of detecting a residual phase error using the known signal and the received version of the known signal; and~~

~~phase compensating step of carrying out phase compensation on the each reception signal the received version of each transmission signal using the residual phase error.~~